

# Advanced Cell Culture Solutions for Your Seahorse XF Analyzer

Agilent sensor cartridges and cell culture microplates





# Gain a Clearer Picture of What Your Cells Are Doing

Comprising instruments, assay kits, software, and consumables, Agilent Seahorse XF platforms are designed to support you from sample to insight.





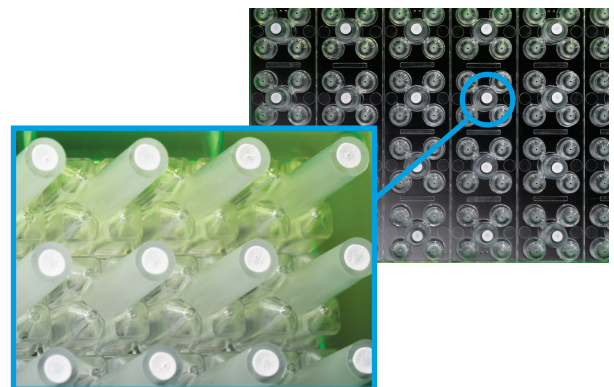
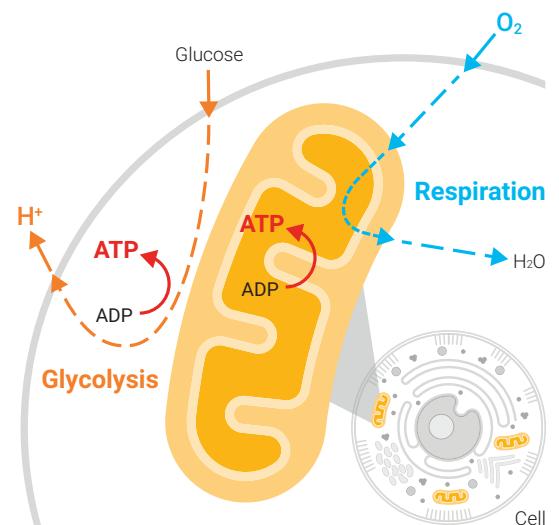
## Sensor cartridges for reliable kinetic measurements

Cellular oxygen consumption (respiration) and proton excretion (glycolysis) cause rapid changes to the concentrations of dissolved oxygen and free protons. Agilent sensor cartridges for Seahorse XF analyzers ensure sensitive, kinetic measurements to simultaneously analyze both metabolic energy pathways.

### Key features

- Patented transient microchamber improves analytical sensitivity and signal-to-noise of OCR and ECAR readings.
- Solid-state sensor probes containing polymer-embedded fluorophores detect oxygen and proton levels in cell culture media. The probes reside 200  $\mu\text{m}^*$  above the cells and take measurements every few seconds.
- Integrated injection ports—a patented design—let you add compounds, stimulators, inhibitors, substrates, and beads conjugated with antigens.
- Sensors are spotted onto the cartridge using both manual and machine vision inspection.
- Every lot is 100% quality controlled for performance and lot-to-lot consistency.

\* Microchamber volume differs by tissue culture plate type.



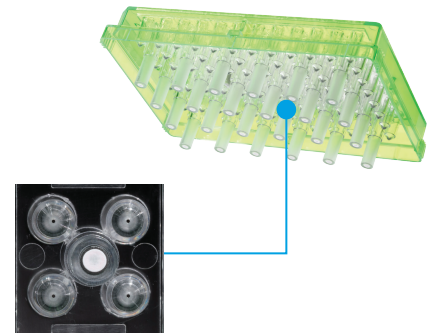
# Agilent Seahorse XF FluxPaks Take You from Sample to Insight

Convenient FluxPaks contain the essential consumables you need to perform XF assays.

## Sensor cartridges

The essential component for simultaneously measuring bioenergetic pathways.

- Non-invasive sensors to measure dissolved oxygen and free protons
- Four injection ports
- Lot-to-lot consistency
- High-precision manufacturing process
- One-year shelf life from manufacturing date
- Patented design



## Cell culture microplates

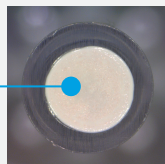
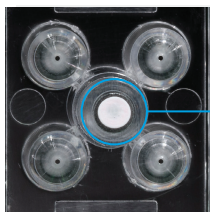
Choose from many plates to suit your application and sample type. See page 8 for a complete list.

- Tissue culture treated and irradiated for sterility
- Tapered walls to facilitate cartridge alignment, especially at low volumes
- Well "bumps" define microchamber height and volume
- Conforms to ANSI/SLAS microplate standards for footprint dimensions and well positions.
- Polystyrene material
- Living cells, isolated mitochondria, islets, and spheroids
- Poly-D-Lysine 96- and 8-well formats



## Calibrant and calibration plates

- Premixed calibrant: ready to use and optimized for XF sensor cartridge calibration
- Calibration plates: suitable for calibration and hydration
- Hydro Booster: optimize hydration workflow

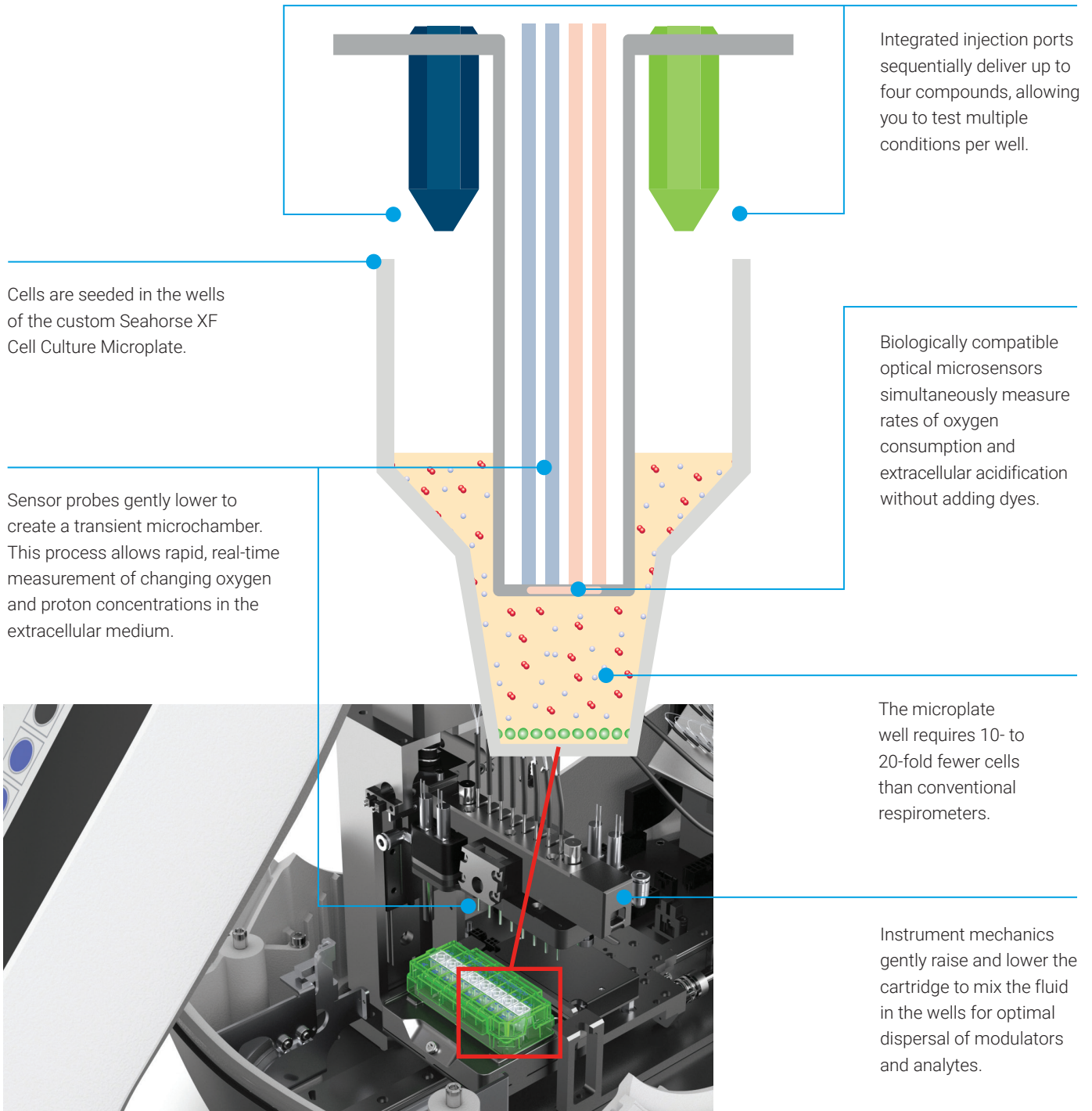


### Precise sensor cartridge spotting

High-resolution machine vision imaging inspects the spot quality on every cartridge.

# Seahorse XF Technology: A Closer Look

The integrated drug delivery system lets you sequentially add up to four compounds per well, so you can perform a complete mitochondrial or glycolytic kinetic assessment.

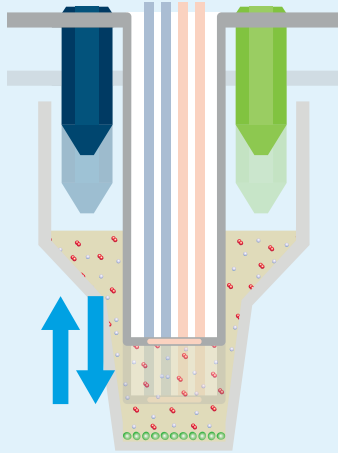


## What happens during a measurement cycle?

Each measurement cycle amounts to one time point; over time, the kinetic data is plotted and displayed.

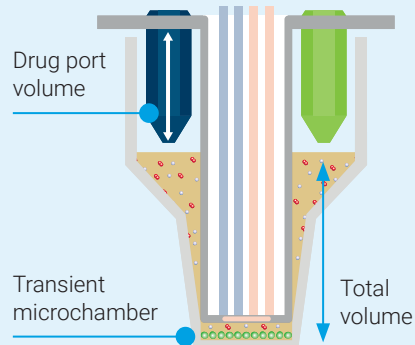
### Mix

When the assay starts, the sensor cartridge probes lower into each well and repeatedly mixes the culture medium.



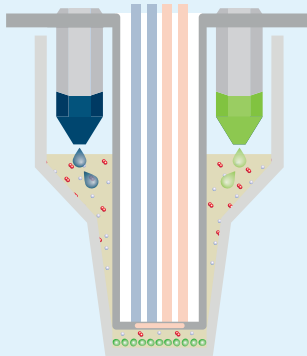
### Measure

The probes lower to form the extremely small volume of the transient microchamber.



### Inject

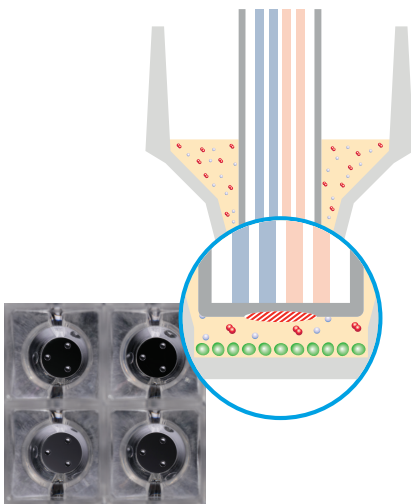
After a series of basal measurements, constituents are injected from the drug ports into the culture medium at user-programmable intervals.



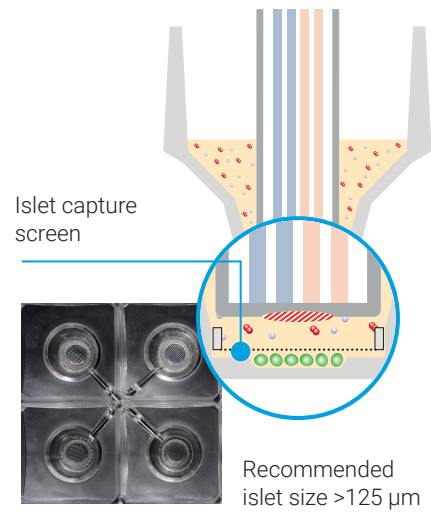
# Cell Culture Microplate Types and Specifications



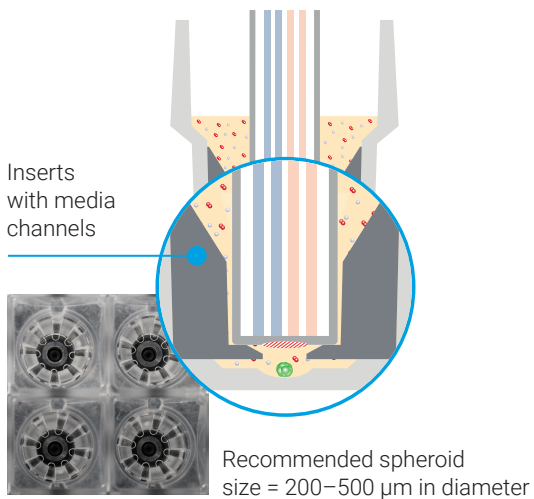
### Standard Microplate



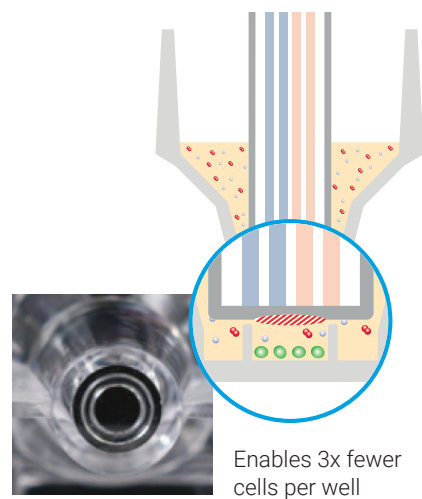
### Islet Capture Microplate



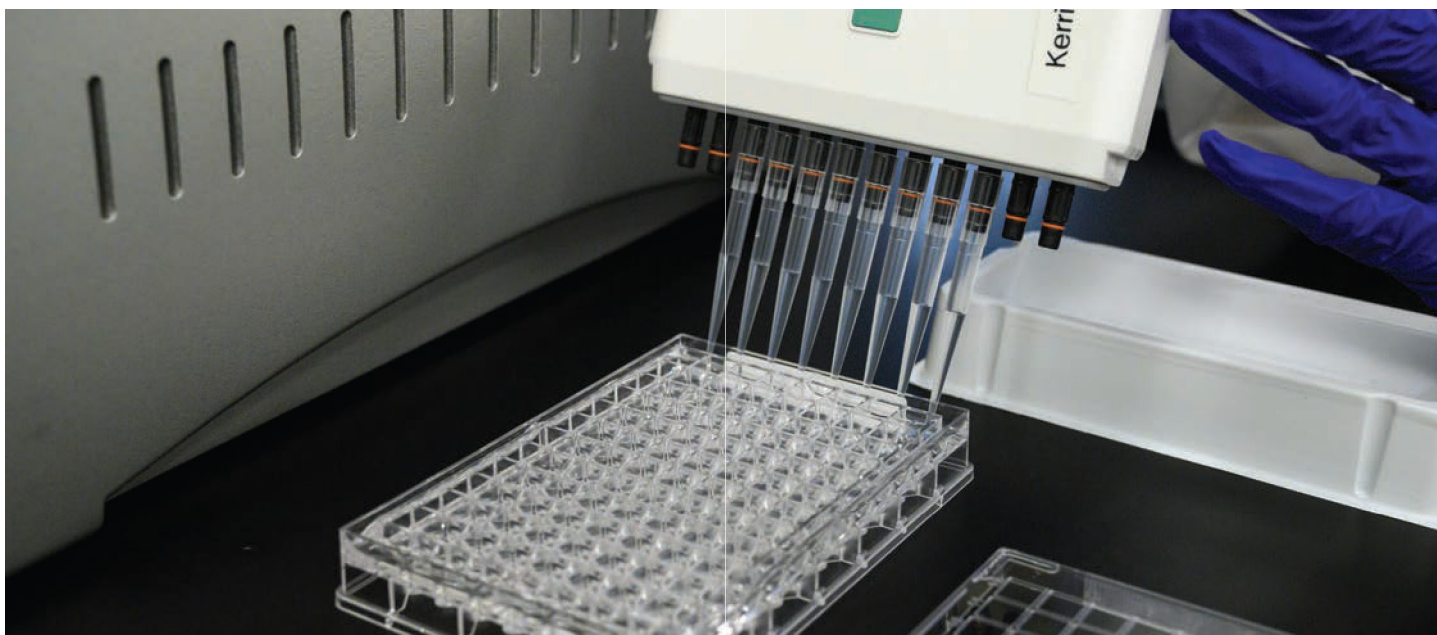
### Spheroid Microplate



### XF HS Miniplate







Seahorse XF Cell Culture Microplates and Miniplates can be modified with substrates to improve cellular adherence. You can purchase precoated Poly-D-Lysine plates or modify manually (such as collagen or Cell-Tak).

Analyzer	Plate Type	Number of Wells	Total Volume (μL)	Microchamber Volume (μL)	Height of Microchamber (μm)	Material	Cell Types	Isolated Mitochondria	Part Number
XF Pro	V3 PS (M Type plate)	96	250	2.26	203	PS	2-D, monolayer	Yes	<a href="#">103774-100</a>
XFe96 or XF Pro	V3 PS	96	250	2.26	203	PS	2-D, monolayer	Yes	<a href="#">103794-100</a>
XFe96 or XF Pro	V3 PS (+PDL)	96	250	2.26	203	Poly-D-Lysine on PS	2-D, suspension and monolayer	Yes	<a href="#">103799-100</a>
XFe96 or XF Pro	Spheroid	96	250	3.69	856	PS	3-D, spheroids	No	<a href="#">102978-100</a>
XFe24	V7 PS	24	1000	5.76	203	PS	2-D, monolayer	Yes	<a href="#">100777-004</a>
XFe24	V28 PS	24	1000	23.9	813	PS	2-D, monolayer	No	<a href="#">100882-004</a>
XFe24	Islet	24	1000	16.87	1,422	PS	3-D, islets	No	<a href="#">101122-100</a>
XF HS Mini or XFp	V3 PS	8	250	2.26	203	PS	2-D, monolayer	Yes	<a href="#">103025-100</a>
XF HS Mini or XFp	V3 PS (+PDL)	8	250	2.26	203	Poly-D-Lysine on PS	2-D, suspension and monolayer	Yes	<a href="#">103721-100</a>
XF HS Mini	PS	8	250	0.72	203	PS	High sensitivity* 2-D; suspension and monolayer	Yes	<a href="#">103725-100</a>
XF HS Mini	PS (+PDL)	8	250	0.72	203	Poly-D-Lysine on PS	High sensitivity* 2-D; suspension and monolayer	Yes	<a href="#">103727-100</a>

PS = Polystyrene

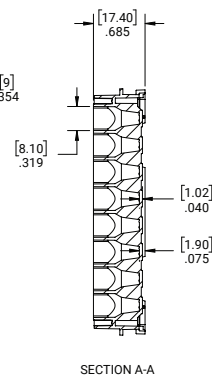
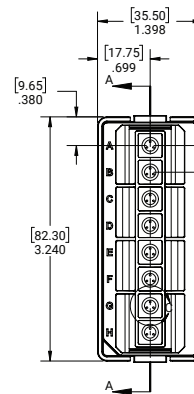
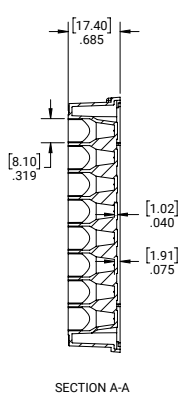
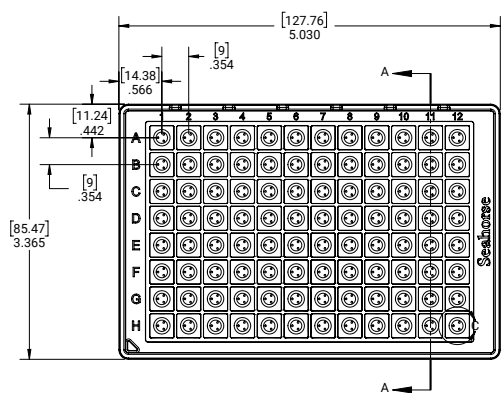
\* = XF HS Miniplate enables fewer cells per well.

# Specifications for Cell Culture Microplates

## XFe96/XF Pro Cell Culture Microplate

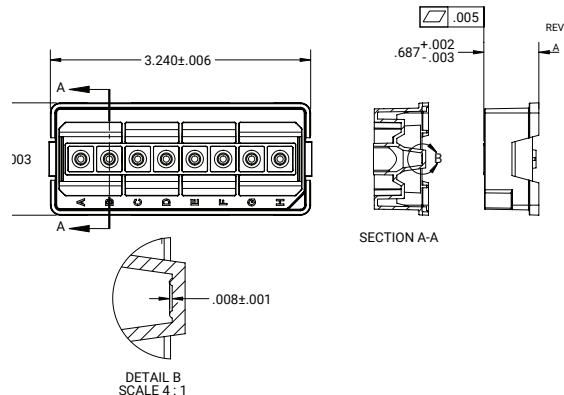
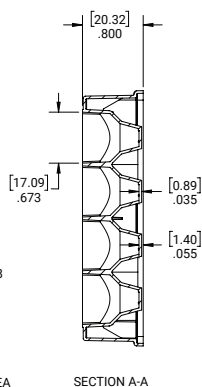
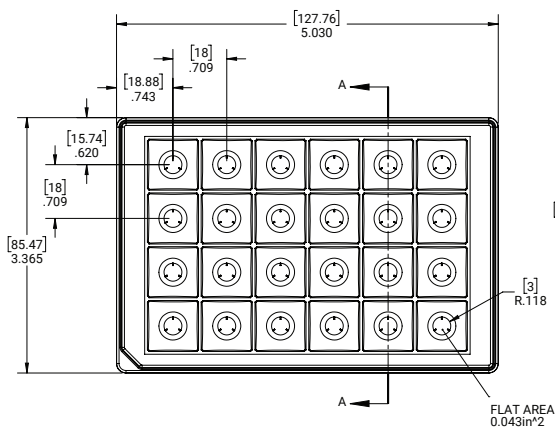
## XFp Cell Culture Miniplate

Dimensions are [mm] in.



## XFe24 Cell Culture Microplate

## XF HS Miniplate



All plate dimensions can be found online  
[www.agilent.com/chem/seahorse-xf-plate-dimensions](http://www.agilent.com/chem/seahorse-xf-plate-dimensions)

### Cell culture microplate dimensions

Plate Type	Max Volume (μL)	Well Depth (mm)	Well Diameter Top/Bottom (mm)	Plate Length (mm)	Plate Width (mm)	Plate Height (mm)	A1 Row Offset (mm)	A1 Column Offset (mm)	Well-to-Well Row Center Spacing (mm)	Well-to-Well Column Center Spacing (mm)	Well Bottom Elevation (mm)	Well Bottom Thickness (mm)	Well Bottom Area (mm <sup>2</sup> )
XFe24	1000	18.92	17.09/6	127.76	85.47	20.32	15.74	18.88	18	18	0.51	0.89	28.26
XFp	250	15.49	8.1/3.81	35.5	82.3	17.4	9.65	17.75	9	N/A	0.89	1.02	11.40
XFe24 Islet	1000	19.18	17.09/3.15	127.76	85.47	20.32	15.74	18.88	18	18	0.5	0.65	7.79
XFe96 Spheroid	250	15.75	8.1/3.18	127.76	85.47	17.4	11.24	14.38	9	9	0.89	0.76	7.94
XF Pro M	250	15.49	8.1/3.81	127.76	85.47	17.4	11.24	14.38	9	9	0.89	1.02	11.40
XFe96/XF Pro	250	15.49	8.1/3.81	127.76	85.47	17.4	11.24	14.38	9	9	0.89	1.02	11.40

## Ordering information for Agilent Seahorse XF plastic ware

Product Description	Product Content	Part Number
<b>XF Pro Analyzer</b>		
Seahorse XF Pro M FluxPak	18 96-well sensor cartridges, 18 XF Pro M microplates	103775-100
Seahorse XF Pro M FluxPak Mini	6 96-well sensor cartridges, 6 XF Pro M microplates	103777-100
Seahorse XF Pro M Microplates	6 XF Pro M microplates	103774-100
Seahorse XFe96/XF Pro FluxPak	18 96-well sensor cartridges, 18 XFe96/XF Pro microplates	103792-100
Seahorse XFe96/XF Pro FluxPak Mini	6 96-well sensor cartridges, 6 XFe96/XF Pro microplates	103793-100
Seahorse XFe96/XF Pro Microplates	6 XFe96/XF Pro microplates	103794-100
Seahorse XFe96/XF Pro PDL FluxPak Mini	6 96-well sensor cartridges, 6 XFe96/XF Pro PDL microplates	103798-100
Seahorse XFe96/XF Pro PDL Microplates	6 XFe96/XF Pro PDL microplates	103799-100
Seahorse XFe96 Spheroid FluxPak	6 XFe96 sensor cartridges, 6 XFe96 spheroid culture micoplates	102905-100
Seahorse XFe96 Spheroid Plate	1 polystyrene plate, 1 mm (divot diameter)	102959-100
Seahorse XFe96 Spheroid Microplates	6 polystyrene plates, 1 mm (divot diameter)	102978-100
<b>XFe96 Analyzers</b>		
Seahorse XFe96/XF Pro FluxPak	18 96-well sensor cartridges, 18 XFe96/XF Pro microplates	103792-100
Seahorse XFe96/XF Pro FluxPak Mini	6 96-well sensor cartridges, 6 XFe96/XF Pro microplates	103793-100
Seahorse XFe96/XF Pro Microplates	6 XFe96/XF Pro microplates	103794-100
Seahorse XFe96/XF Pro PDL FluxPak Mini	6 96-well sensor cartridges, 6 XFe96/XF Pro PDL microplates	103798-100
Seahorse XFe96/XF Pro PDL Microplates	6 XFe96/XF Pro PDL microplates	103799-100
Seahorse XFe96 Spheroid FluxPak	6 XFe96 sensor cartridges, 6 XFe96 spheroid culture micoplates	102905-100
Seahorse XFe96 Spheroid Plate	1 polystyrene plate, 1 mm (divot diameter)	102959-100
Seahorse XFe96 Spheroid Microplates	6 polystyrene plates, 1 mm (divot diameter)	102978-100
<b>XFe24 Analyzers</b>		
Seahorse XFe24 FluxPak	18 XFe24 sensor cartridges, 20 XF24 V7 PS tissue culture microplatess	102340-100
Seahorse XFe24 FluxPak Mini	6 XFe24 sensor cartridgegss, 10 XF24 V7 PS tissue culture microplates	102342-100
Seahorse XFe24 Islet Capture FluxPak	6 XFe24 sensor cartridges, 6 XF24 islet capture culture microplates	103518-100
Seahorse XF24 V7 PS Culture Microplates	10 polystyrene plates	100777-004
Seahorse XF24 V28 PS Culture Microplates	10 polystyrene plates	100882-004
Seahorse XF24 Islet Capture Microplates	6 polystyrene plates	101122-100
<b>XFp Analyzers</b>		
Seahorse XFp FluxPak	12 XFp sensor cartridges, 12 XFp PS tissue culture microplates	103022-100
Seahorse XFp Cell Culture Miniplates	12 polystyrene plates	103025-100
Seahorse XFp FluxPaks (PDL Miniplates)	12 8-well sensor cartridges, 12 XFp miniplates	103721-100
Seahorse XFp PDL Miniplates	12 XFp PDL miniplates	103722-100
<b>XF HS Mini Analyzers</b>		
Seahorse XFp FluxPak	12 XFp PS tissue culture microplates	103022-100
Seahorse XFp Cell Culture Miniplates	12 polystyrene plates	103025-100
Seahorse XFp FluxPak (PDL Miniplates)	12 8-well sensor cartridges, 12 XFp PDL miniplates	103721-100
Seahorse XFp PDL Miniplates	12 XFp PDL miniplates	103722-100
Seahorse XF HS Mini FluxPak	12 8-well sensor cartridges, 12 XF HS miniplates	103723-100
Seahorse XF HS Mini FluxPak (PDL Miniplates)	12 8-well sensor cartridges, 12 XF HS PDL miniplates	103724-100
Seahorse XF HS Miniplates	12 XF HS miniplates	103725-100
Seahorse XF HS PDL Miniplates	12 8-well sensor cartridges, 12 XF HS PDL miniplates	103727-100

Learn more about Agilent Seahorse XF technology:

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